ENERGY STAR® Vending Machine Conference Call: Addressing the Installed Base
December 18, 2002
Notes

The Preliminary Draft ENERGY STAR specification currently addresses energy performance of new refrigerated beverage vending machines. This conference call focused on whether EPA should also address the performance of the installed base of machines and if so, how such a program could be implemented? Participants included representatives from the machine manufacturers, soft drink companies, and energy-efficiency community. Comments provided by the group are summarized below. Conclusions, next steps, and a list of participants are also included.

Should EPA address the installed base of machines in an ENERGY STAR specification?

- Existing machines should be included in the program, the question is how should we deal with those already in distribution?
- No ENERGY STAR specifications currently address an existing installed base of products; all specifications apply only to newly manufactured products. However, this industry presents a unique situation because the site where the machine is located is not the entity that owns the machines. In addition, machines are reused. That is, when a contract with one account is ended, the machine may be placed at another site for a different account. It is possible that instead of purchasing a brand new machine, an account can request an older ("used") machine to be put on their site.
- A lot of machines in distribution would not be able to meet the ENERGY STAR specification, no matter what component retrofits are done.
- Energy-efficient machines already in use at sites may be able to meet the ENERGY STAR specification once finalized. If accounts request ENERGY STAR, this would allow the bottler to satisfy that need with existing and/or new machines.
- EPA should have one specification for both existing and new machines.
- ENERGY STAR does not specify that the machine has to be new or have all new components to qualify, so there is no reason why existing machines could not be included.
- The decision whether or not to specify a retrofit or new machine is up to the bottler; it's an economic decision. It may not be economically or mechanically feasible to retrofit an existing model.

How would you verify the retrofit in the field?

- A number of refurbishing centers do not have testing facilities on site to verify compliance.
- The ENERGY STAR specification could provide model number and year manufactured with a list of possible component change-outs as a way to incorporate existing machines into the program.

- A specification for existing machines could include a percentage or actual kWh/day differential before and after the retrofit takes place.
- EPA should leave the retrofit program implementation and policing to the manufacturers and bottlers. There is concern that a retrofit component to ENERGY STAR would lead to too much bureaucracy and an excessively difficult approval process.
- A retrofit component to ENERGY STAR should be relaxed and not a full-blown program. It would be too difficult to police.
- The problem with using specific component change-outs to qualify existing machines without retesting them is that there may be other problems with the model that cause it to be inefficient (i.e., faulty door seal).

If someone other than the original equipment manufacturer (OEM) performs the retrofit, what impact does that have on UL certification?

- If the door seal is tightened, the graphics are changed, or the machine is simply cleaned up, the machine will be able to continue to carry the UL certification. However, any retrofitting, major component changes, or electrical changes made to the machine causes it to lose its original UL certification.
- The concern is that if retrofits are done and there is an accident with the machine (i.e. electrical shock), the bottler will be liable. This is an overall concern with all retrofits. Will re-certification be necessary? According to UL, inspection and approval of retrofits is required to continue to carry the UL certification. This typically includes an approval of the retrofit process and quarterly follow-up inspections at all refurbishment centers.
- If a UL certified component is used in the change-out, will an inspection still be required? According to UL, any retrofit process will require an inspection, regardless if the component is UL certified or not.
- Again, it is an economic decision that is made by the bottler as to whether or not to use retrofitted equipment. They need to take into account the costs associated with the retrofits, UL audits, etc. In the end, it may actually be more beneficial to go with a new machine model in some cases.

Are there any threshold guidelines that EPA could implement in a specification that would interest bottlers? For example, only machines manufactured after a certain date could be qualified under a retrofit scenario.

- It's not a simple formula. It depends on the nature of the account, the length of the contract, and location. Again it is a matter of whether it make economic sense to retrofit the machine.
- There are instances where a retrofit scenario may work for a bottler. To date there are machines that would currently meet the specification and others that are very close and would only require a small change (i.e., T-8 lighting) to meet. There would still be the challenge of achieving UL certification.

Is it possible to not include a retrofit program in the ENERGY STAR specification and still be successful?

- If the expected demand of ENERGY STAR qualified machines is less than purchasing plans for the year, then only a new machine specification is needed. If it is more, then retrofits may need to be included.
- According to the soft drink companies, the demand of ENERGY STAR qualified machines is not expected to outweigh planned purchases.
- Existing accounts (e.g., universities, school districts) are expected to start soliciting for ENERGY STAR qualified machines; so demand is a concern.
- If EPA does include existing machines in a specification, the performance level requirements should be the same as new machines.

Are manufacturers producing equipment today that would meet the current Draft specification (45% better than CSA)?

- Current equipment is already there: from 1998 – today. With T-8 lighting system change-outs, some machines manufactured before 1998 could get there.
- Post-1998 machine models offer the software needed for the low power mode requirement. It would take a lot of money to upgrade the software functions in machines manufactured before 1998.

Is it feasible to take older equipment up to an ENERGY STAR specification?

- There is a threshold energy consumption requirement (without any controls engaged). Manufacturers will not be able to use software functions to reach performance levels under the specification.
- Lighting and refrigeration change-outs would not get most pre-1998 machines to the ENERGY STAR specification because of the low power mode capability requirement.
- The current ASHRAE test procedure does not take into consideration the use of software controls in energy consumption. The proposed new ASHRAE test procedure may; this version is out for public comment. However, it is not known when the new test will be finalized, so EPA must go with the test procedure that is currently in place.
- If a bottler places an external control device on an existing machine that powers it down for 12 hours, it could meet the KWh/day requirement; however, the machine itself would not be ENERGY STAR.

Can we apply the new machine performance level to existing machines and leave out the low power mode requirement?

- All machines would need to reach a certain energy consumption level and also be able to power down using internal software function.
- The control portion of the specification is icing on the cake; a way to take the energy savings beyond the threshold. It should be noted that these additional savings are dependent on the patterns of machine use at the site, and is therefore not guaranteed.

- You might be able to get older machines to meet a new machine specification with component change-outs but you will not be able to implement the internal software controls requirement.

How will utilities feel about excluding retrofitted machines in the ENERGY STAR specification?

- Utilities want a new machine specification but also want to look at the installed base. However, they can implement a retrofit program outside of ENERGY STAR.
- The cost of the UL re-certification process should be considered when developing utility rebate and incentive programs.
- Overall, utilities will want a simple ENERGY STAR specification; this will ensure higher participation.

Is it possible to set an ENERGY STAR specification for new machines and come back to the retrofit issue at a later date?

- If the demand is there, NAMA and the bottlers will ask EPA to revisit the specification to incorporate retrofits.
- Why create a solution for retrofits when we do not know yet if we have a problem?
- There is a great deal of complexity when it comes to a retrofit program; EPA should wait and see what happens with the market.
- Bigger accounts such as school districts and sports arenas already specify new machines, so retrofits would not even work in these situations.
- There will be a number of accounts that will simply ask for energy-efficient models and not necessarily specify ENERGY STAR per se. In these cases, bottlers may have an opportunity to place retrofitted machines at these sites.
- Industry should keep in mind that it can take 18 months – 2 years to develop a test procedure; we don't have much time to come back to a retrofit specification. If only 10% of the installed base request ENERGY STAR, that is still a large demand. This demand could exceed planned purchases.

If an account wants an ENERGY STAR qualified machine model and the bottler does not have one available, how can they meet the demand without losing the account?

- If the bottler can prove that an older machine meets ENERGY STAR performance requirements, then the account may agree to take the older machine.
- If a manufacturer provides the test data that shows that it meets ENERGY STAR requirements, it should be able to use the ENERGY STAR.
- It is more feasible to allow older machines that meet the ENERGY STAR performance requirements without retrofits to be included in the program. However, some testing and verification is needed to ensure these older machines do meet the requirements.

From the OEM standpoint, all machines are tested brand new, as it leaves the factory. How do we ensure that these older machines still meet the ENERGY STAR specification?

- There has to be some verification that the older machine still meets the existing ENERGY STAR specification.
- Due to wear and tear over time, machines do not usually perform at the same level as when first manufactured and tested.
- Actual machine performance decay cannot be determined; it occurs on a case by case basis with many contributing factors.
- Existing machines that meet ENERGY STAR performance requirements at the time of manufacture, should be able to qualify.
- The following options seem to be the most feasible:
    - Specification for new machines only and come back to the retrofit option if needed
    - Allow manufacturers to qualify machines that meet the ENERGY STAR specification at the time of manufacturing

Is testing information readily available on older machines?

- Manufacturers have some data on older machines, however, test conditions could have been different at the time of testing.
- All manufacturers have "library machines" that could be tested, but these may give inaccurate performance readings.
- Manufacturers could take an older machine, clean it up, change the seals, make sure that all the components are in good shape, and then test the performance of that model according to the ASHRAE procedure. If this model meets the specification, then it qualifies for ENERGY STAR.
- It is important to note that the manufacturer has to provide current data on the machine model and cannot retrofit the machine prior to testing.
- Manufacturers should test more than one machine to arrive at an average performance level for that model.
- ENERGY STAR has typically applied to only new equipment; however, with this product type, there is a need to ensure that a portion of the installed base can qualify.

Who will be responsible for applying the ENERGY STAR label?

- It is more important to have the existing models that qualify listed on the ENERGY STAR web site.
- The bottler could provide a list of qualified machine models to the host site ensuring that the model meets the ENERGY STAR performance requirements.

What should the list of qualifying products include?

- The model number and the year of manufacture. Using the serial number of the machine, the bottler can then decipher if the machine qualifies.

Conclusions and Next Steps

Overall the group agreed that at this time an ENERGY STAR specification for refrigerated beverage vending machines should address existing machine models that can meet the performance requirements without the need to retrofit components. It was also decided that one specification should apply to both new and existing (unaltered) machines. Manufacturers will need to test existing machine models to reflect current qualification. This will ensure for example, that a machine manufactured and tested in 1997, while meeting the performance requirements in 1997, will continue to meet ENERGY STAR performance requirements. ENERGY STAR will need to specify the testing parameters for existing machines within the program requirements.

Next steps:

- EPA will work with the manufacturers to determine the appropriate definition of an "existing machine" as well as the required testing and reporting protocol that an existing machine model will need to meet to qualify for ENERGY STAR. Manufacturers are encouraged to provide draft language.
- Once EPA reviews additional machine performance data provided by NAMA and the comments provided during this call, the draft specification will be revised and a second version will be distributed for comment.
- UL will have a follow-up discussion with industry members regarding machine retrofitting and the UL continued certification issue. These discussions will take place outside of EPA's specification development process. Those interested should contact Robert Roberson of Underwriters Laboratory Inc. at (919) 549-1677 or Robert.J.Roberson@us.ul.com

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